



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/595,591	01/30/2007	Masahisa Miyahara	20154/0204361-US0	3169
7278	7590	04/02/2009	EXAMINER	
DARBY & DARBY P.C. P.O. BOX 770 Church Street Station New York, NY 10008-0770			MAI, NGOCLAN THI	
			ART UNIT	PAPER NUMBER
			1793	
			MAIL DATE	DELIVERY MODE
			04/02/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/595,591	MIYAHARA ET AL.	
	Examiner	Art Unit	
	NGOCLAN T. MAI	1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 4/28/06.
 2a) This action is FINAL. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-4 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 1-4 is/are rejected.
 7) Claim(s) _____ is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____ .
3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)	5) <input type="checkbox"/> Notice of Informal Patent Application
Paper No(s)/Mail Date <u>4/28/06</u> .	6) <input type="checkbox"/> Other: _____ .

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Soileau et al (U.S. Patent No. 4,501,753, cited by the applicants) in view of Ueta et al (2003007448).

Soileau disclose a method for forming powdered iron core magnetic device substantially as claimed. The method comprises forming a silicon resin film-coated soft magnetic powder (column 1, lines 15-19, column 4, line 42 to column 5, line 19), compressing the silicon resin film-coated powder at 50 to 100 ton/in² (689-1379 MPa) to form a compact (column 5, lines 47-52) and annealing, i.e., curing the compact at at least 500 C to 600 C to relieve the stresses in iron particles incurred during pressing operation and reduce the hysteresis losses (column 5, lines 61-66). Soileau teaches iron powder as ferromagnetic powder having mean particle size in the range of 0.002" to 0.006" (50-100 µm), and coating thickness should be about from about 0.5 to 1.5% of the particle size (column 3, lines 49-52 and column 5, lines 37-38). The thickness therefore is between 0.25 to 1.5 µm.

Soileau differs from the claims in that Soileau does not teach heating the silicon resin film-coated magnetic powder of from room temperature to 150° C and filling the preheat powder in a mold which is heated at a temperature from 100 to 150° C.

Ueta teaches in the same field of endeavor disclose iron powder core can be produced by warm pressing method where the powder and the die are heated and the pressing is performed at a predetermined temperature. See [0105]. For silicon rein coated soft magnetic powder at pressing temperature of 130 C, a die for pressing is preheated so that the die surface temperature was made to be at the pressing temperature (i.e. 130 C) and the iron-based powder heated to the same temperature (i.e., 130 C) was put into the die. [0185]. It would have been obvious to one skill in the art at the time the invention was made to form the iron core magnetic component of Soileau by preheating the insulated soft magnetic powder and heating the mold at the temperature at taught by Soileau order to effectively carried out the process. Furthermore it would have been obvious to one skilled in the art to carry out the warm compaction since it is well known in the art that warm compaction produces a denser product.

3. Claims 1 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ebling in view of Ueta et al (2003007448).

Ebling disclose a method for making compressed steel powder article by coating the particle of the steel powder with silicone resin having a thickness of about 1 micron or less (column 3, lines 58-61), compressing the coated steel powder at with a pressure in excess of 50 tsi (600 MPa) and heating at 500°F to 1,200°F (260 °C to 649 °C. to stress relieve the compressed part. See column 2, lines 10 to column 4, line 23. Ebling discloses the compression of the coated steel powder is carried out at room temperature, although temperature up to the decomposition temperature of the resin can be used. See column 4, lines 1-3. Ebling differs from the claims in that Ebling does not teach heating the silicon resin film-coated magnetic

powder of from room temperature to 150° C and filling the preheat powder in a mold which is heated at a temperature from 100 to 150° C.

In the same field of endeavor Ueta discloses iron powder core can be produced by warm pressing method where the powder and the die are heated and the pressing is performed at a predetermined temperature. See [0105]. For silicon rein coated soft magnetic powder at pressing temperature of 130 C, a die for pressing is preheated so that the die surface temperature was made to be at the pressing temperature (i.e. 130 C) and the iron-based powder heated to the same temperature (i.e., 130 C) was put into the die. [0185]. It would have been obvious to one skill in the art at the time the invention was made to form the iron core magnetic component of Soileau by preheating the insulated soft magnetic powder and heating the mold at the temperature at taught by Ueta order to effectively carried out the pressing process. Furthermore it would have been obvious to one skilled in the art to carry out the warm compaction since it is well known in the art that warm compaction produces a denser product.

4. Claims 2 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Soileau and Ueta as applied to claims 1 above, and further in view of Gay (U.S. Patent No. 5,595,609).

Soileau teaches the method of making composite soft magnetic material as claimed. Soileau discloses the soft magnetic powder is first coated with alkali metal silicate and then with the silicon resin. See column 2, lines 53-66. Soileau differs from the claims in that Soileau does not teach silicon resin being coated on a phosphate film-coated soft magnetic powder. Gay teaches to provide low core losses, the individual metal particles within the magnetic core must be electrically insulated from each other and alkali metal silicate and iron phosphate have been suggested as an inorganic insulating material. Gay also discloses it is also known to coat a

powdered metal with an inorganic undercoating and then provide an organic topcoat. See column 1, lines 34-44.

Accordingly it would have been obvious to one or ordinary skill in the art at the time the invention was made to substitute iron phosphate for the alkali metal silicate as the undercoating before silicon resin as the organic topcoat taught by Soileau is applied since the substitution of one known element for another would have yielded predictable results to one of ordinary skill in the art at the time of the invention.

5. Claims 2 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over or Ebling and Ueta as applied to claims 1 above, and further in view of Gay (U.S. Patent No. 5,595,609).

Ebling discloses the method of making composite soft magnetic material as claimed. Ebling and Ueta differ from the claims in that there is no teaching of silicon resin being coated on a phosphate film-coated soft magnetic powder. Gay discloses to provide low core losses, the individual metal particles within the magnetic core must be electrically insulated from each other and alkali metal silicate and iron phosphate have been suggested as an inorganic insulating material. Gay also discloses it is also known to coat a powdered metal with an inorganic undercoating and then provide an organic topcoat. See column 1, lines 34-44. It would have been obvious to one or ordinary skill in the art at the time the invention was made to insulate the steel powder of Ebling in view of Ueta employing inorganic coating taught by Gay in order to reduce core losses before applying the silicon resin. It would have been obvious to one skill in the art at the time the invention was made to have selected any inorganic insulating material for the prior range including the instantly claimed iron phosphate disclosed in the prior art reference since the prior art taught the same utility over the entire range. See MPEP 2144.05.

Art Unit: 1793

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to NGOCLAN T. MAI whose telephone number is (571)272-1246.

The examiner can normally be reached on 8:30-5:00 PM Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Roy King/
Supervisory Patent Examiner, Art Unit
1793

n.m.